Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 1-7. These sheets, which include Figures 1-9, replace the original sheets including Figures 1-9.

Attachment: Replacement Sheets

REMARKS

Claims 4-12 and 15-19 are presented for further examination. Claim 4 has been amended. Claim 20 was canceled in the last Amendment and is not present in the application.

In the Office Action mailed June 14, 2005, the Examiner allowed claims 7-12, 15, and 16. Claims 17-19 were indicated as rejected and claim 20 was objected to by the Examiner. In a telephone conference with the Examiner on June 20, 2005, Applicant's undersigned representative confirmed that claims 17-19 are allowable inasmuch as claim 17 includes the limitations of allowable dependent claim 20, and that claim 20 was canceled. Figures 1-7 were requested to include the label "Prior Art." Claims 4 and 6 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,226,337 ("Klank et al."). Claim 5 was rejected as obvious under 35 U.S.C. § 103(a) over Klank et al. in view of U.S. Patent No. 5,506,836 ("Ikeda et al.").

Applicant respectfully disagrees with the bases for the rejections and requests reconsideration and further examination of the claims.

In the remarks accompanying the Office Action, the Examiner acknowledged that Applicant's arguments submitted on January 10, 2005, had been fully considered but were not considered persuasive. More particularly, in response to the Applicant's arguments that Klank et al. does not disclose a "temporal shift of the analysis window," the Examiner asserted that Klank et al. did in fact disclose the use of "time domain window shifting corrections," referencing col. 11, lines 54-67, and col. 12, lines 1-11.

Applicant has reviewed these portions of Klank et al. and respectfully disagrees with the Examiner's position that Klank et al. discloses the claimed temporal shifting of the analysis window. Applicant respectfully submits that there is a clear difference between the basic operations of COFDM decoding, which is described in Klank et al., and in the correction of window jitter, which is claimed in the present invention, and which is a second order element with respect to the method described in Klank et al.

Klank et al. pertains to a method for the transmission of reference signals in an OFDM system. A time frequency phase control (TFPC) symbol is assigned to individual carriers or frequencies of the OFDM multi-carrier method. Klank et al. specifically describe signal

samples being transformed "into a frequency representation and evaluated in that form, and the results are transformed back into the time domain." (See Klank et al., col. 1, lines 21-27.)

In Klank et al., "only a single symbol is required for the synchronization" to permit "the detection of appreciable deviations from the normal receiver oscillator frequency or of a deviation of the transmitter frequency from the given frequency pattern, and the correction of the oscillator frequency." (See col. 1, lines 32-38.) Thus, Klank et al.'s description pertains to corrections performed in the frequency domain as evidenced by the use of OFDM modulation or frequency division multiplexing with discrete Fourier transform.

In Klank et al., the signal "sampled in a temporal sequence is transformed by a FFT into a representation in the frequency domain," after which it is complex-conjugate multiplied, stored in the receiver, and the result is subsequently transformed back into the time representation. (See Klank et al., col. 3, lines 22-28.)

To accomplish the foregoing, it is implicit that the windows be regularly spaced in time. Klank et al., do not address the problem arising from the beginning of each window not always occurring at regular times, *i.e.*, temporal jitter. In other words, the jitter being defined as the temporal window shift with respect to an optimal position. Temporal jitter is a second order effect that was not sufficiently understood or addressed by Klank et al. In contrast, the present invention compensates for this jitter by changing the frequencies of the carriers of a window that is temporarily shifted. It is clear that Klank et al. do not perform any temporal window shifting with respect to an optimal position. Rather, in Klank et al. the windows are always at optimal temporal positions.

At col. 11 through col. 12, in Klank et al., and in particular col. 12, lines 1-5, Klank et al. mentions the possibility of a temporal filtering over several symbols. However, this filtering is only possible if the FFT windows are exactly spaced in time. If not, then the method of Klank et al. will not work because the average is made after the Fourier transform, and the phases of each carrier are affected by the temporal jitter of the windows.

Regarding col. 11, lines 56-57 through col. 12, lines 1-11, a "time domain window shifting" as suggested by the Examiner is not mentioned here. This particular passage mentions a temporal and frequential filtering of the reference symbols. It describes a temporal filtering using symbols having two "interspaces." Thus, this signal is still a signal in which the

symbol windows are regularly positioned. Col. 12, line 11 mentions the deviation of the reference symbol with regard to the transmitted symbol. These deviations are amplitude and phase deviations caused by the transmission channel, in particular signal echoes. As previously mentioned, because jitter is a second order effect linked to the fact that the echoes are not stationary, this relatively new problem is not addressed by Klank et al.

Regarding col. 10, lines 47-65 and col. 11, lines 1-3 and 22-47, this passage does not relate to the detection of the optimal window in time. Rather, Klank et al. describes the correction of the frequency, which is performed by searching for a correlation peak. This can be found at col. 10, line 44, which mentions frequency estimation and correction, and col. 12, lines 45-50, which mention Df correction, acting on the RF oscillator (for example, the tuner).

At col. 2, lines 3-10, Klank et al. describe a temporal alternative for some header symbols that would permit calculating an optimal window for the next few symbols. This is not teaching or suggesting the window changing for each symbol, as is done in the present invention. In addition, at col. 3, lines 21-34, Klank et al. describe how the impulse response of the channel is extracted, and thus the temporal framing of the next symbols, and analyzing a known synchronization symbol. This is evidenced from col. 3, line 27, which refers to "stored in the receiver." This demonstrates once again that Klank et al. do not deal with the problem of windows that can be redefined symbol by symbol, but rather it pertains to a series of several information symbols preceded by a synchronization symbol.

With respect to the formula of col. 12, lines 13-32, the phase of the "pilot cells" are corrected. However, they are corrected to their reference value ("stored value" at line 17). What Klank et al. is teaching here is basic COFDM computation: comparing the received signal with the (known) transmitted signal, *i.e.*, the "pilot cell," and deducing from this the distortions that will be applied to the decoding of the neighboring carriers (which are not known and correspond to transmitted bits) in the frequency domain.

The effective echo can be seen on the phase and on the amplitude of the carriers. Hence, the two corrections described at col. 12, line 20 are provided. These formulae allow the computation of the distortions of the carriers. Klank et al. describe the possibility of filtering them by averaging them in time (over several successive symbols) or in frequency (over some neighboring carriers). However, these formulae are only applicable if all the analysis windows

are regularly spaced in time. For example, if the reference has changed between two symbols with Dt (in which Dt is the jitter), the phases of each symbol are modified proportionately to their frequency. The correction would then have to be something along the lines of:

$$Dj(k,ref) = jr(k,ref) - j(k,ref) - 2*?*k*Df*Dt$$

In the above formula, Df is the frequency offset between the two carriers.

Alternatively, it would be equivalent to multiply these references by:

$$\exp(-j*2*?*k*Df*Dt)$$

The implementation of the correction of the jitter Dt and its computation is not easy, and this is one of the aspects of the present invention. Klank et al. only describe recalculation of the windows every "frame" of several symbols. In a frame, there is no need to correct the jitter of the symbol windows, and the filtering as described in Klank et al. is not the problem.

In conclusion, Applicant respectfully submits that there is a clear difference between the basic operations of COFDM decoding, which is described in Klank et al., and in the correction of window jitter, which is claimed in the present invention, and which is a second order element with respect to the method described in Klank et al.

Turning to the claims, Applicant has amended claim 4 to insert the word "temporal" in line 8 between "means for correcting" and "window shifting with respect to an optimal position." In view of the arguments set forth above, Applicant respectfully submits that claim 4 and dependent claim 6 are clearly allowable over the Klank et al. reference. Dependent claim 5, which recites additional features in addition to those of claim 4, is also allowable because it is not taught or suggested by the combination of Klank et al. and Ikeda et al. for the reasons discussed above.

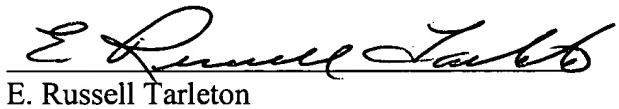
In view of the foregoing, Applicant respectfully submits all of the claims in this application are clearly in condition for allowance. In the event the Examiner finds minor informalities that can be resolved by telephone conference, the Examiner is urged to contact Applicant's undersigned representative by telephone at (206) 622-4900 in order to expeditiously resolve prosecution of this application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

Applicant notes that the Examiner has not acknowledged receipt of the priority documents. This application is a National Stage conversion of PCT/FR00/00477 and the priority documents would have been provided to the U.S. Patent and Trademark Office by the International Bureau. Applicant respectfully requests acknowledgment of receipt of all priority documents.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC



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ERT:jk
Enclosures:
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7 Sheets of Drawings (Figures 1-9)

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